SpotLine ™ M110

User Guide

SpotLine M110 User Guide

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FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment had been tested and found to comply with the limits for a class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician.

Caution to the user: The Federal Communications Commission warns the users that changes or modifications of the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

SpotLine M110 User Guide

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1.0 Introduction

The SpotLine M110 is part of a new generation of asynchronous/LAN terminals designed for all multi-user environments, from microcomputers to minis to mainframes.

And why is this concept new?

It is new and original because the SpotLine M110 demonstrates six key characteristics: Color, Performance, Expandability, Intelligence, Standardization and Integration.

Color: The color can be controlled completely by the host computer, with the application program setting whatever it wants. Performance: Thanks to the high communication speed (up to 115Kbaud) with the host server, the response time for your application is greatly improved.

Expandability: The expandability of the SpotLine M110 terminal is based on two factors:
- Any base unit can be upgraded from monochrome to color simply by changing the monitor you use.
- All the logic and control hardware reside in a separate small unit, which can then be upgraded for future generations more quickly than building the old style of all-in-one terminal.

Intelligence: The built-in functionality of the SpotLine M110 relieves the host computer of many communications tasks, and allows for many different configurations.
In addition, the SpotLine's multiple ports, windowing and multisession capability allows the simultaneous connection to more than one host machine, even if they are running different operating systems.

Standardization: The SpotLine M110 is designed to work with industry standard keyboards, monitors and printers, enabling simple replacement and maintenance of any component.

Integration: The SpotLine M110 has been designed for fast, friendly and simple setup, allowing for immediate and easy integration with your host computer. The resulting system will then use homogenous peripherals, monitors and keyboards.

1.0 Specifications

The principal characteristics of the SpotLine M110 are:

EMULATION: The SpotLine M110 has a number of built-in emulation modes designed to fully support the demands of the principal multi-user operating systems available in the marketplace. Emulations include SCO/ANSI, Pcterm, IBM 3151, DEC VT family, and others.

LAN: The SpotLine M110 uses industry standard Ethernet TCP/IP to provide:
- ARP/ICMP/IP/TCP/UDP/Telnet/LPR services.
- Up to 8 simultaneous Telnet sessions
- Connection to Ethernet via 10Base2 (ThinNet) using a standard BNC connector, or 10BaseT cabling (RJ-45 UTP), with dynamic recognition of which connector you are using.

SPEED: The SpotLine M110 terminal can also connect to any RS232C serial port and communicate asynchronously with host computers at any speed from 1200 baud to 115K baud. Serial and LAN sessions can be active at the same time.

MONITORS: You may connect any monochrome or color VGA/SuperVGA monitor to the SpotLine M110. If you use monochrome, it will automatically be detected and color values will be automatically translated to various brightness levels.

KEYBOARDS: The SpotLine M110 has a PC/AT compatible keyboard port, and can be used with both international scan code keyboards and ASCII keyboards.

PARALLEL PRINTER: The parallel printer port supports a local printer off the terminal. The buffer allows for the rapid transmission of data from the host computer. Printers may then be used as local or system wide devices.

SERIAL PRINTER: A serial printer may be connected to the Serial 1 or Serial 2 ports, or both, on the SpotLine M110. The buffer for print functions allows for efficient use of the chosen port, and printers may then be local or system wide resources.

2.0 Getting Started

3.1 Installation

Follow these steps to install your SpotLine M110:
- ❖ Connect a VGA monitor to the monitor port.
- ❖ Connect your chosen keyboard
- ❖ Connect your terminal to the host server via the LAN using RJ-45 UTP Ethernet, if you wish to use it as a TCP/IP terminal. There are no switches to set. The terminal will automatically detect which connector you have used.
- ❖ Connect a suitable cable to either the SERIAL 1 or SERIAL 2 RS-232 connectors, and the primary/other server for the terminal. See Chapter 6 for the necessary cabling diagrams.
- ❖ Connect a suitable cable to the other serial port and another server if so desired.
- ❖ Attach a parallel printer to the parallel port if needed.
- ❖ Connect a serial printer to the unused serial port if needed.

3.2 Setup

There are a number of configuration parameters that can be setup for your terminal. If you are only using it as a serial asynchronous devices, proceed to the next chapter.

If you will use the SpotLine M110 as a LAN terminal, you must first set the IP address for the terminal (see 4.1.4). As is normal for LAN devices, all those on the same LAN segment must have the same 3 first digits, and a unique last digit.

To confirm that the IP address is set correctly, and that the LAN is communicating properly with your terminal, please issue the "ping" command from your host to the chosen IP address, and ensure that there is no packet loss.

For example, if you have set the terminal to IP address

```
194.2.32.52
```

then on the host system, enter:

```
ping 194.2.32.52
```

Or, if you have already given it a name in your host table, like *spot110*, then you can enter:

```
ping spot110
```

3.0 Usage

4.1 Configuration Setup

All the parameters of the terminal are accessible from on-screen menus, once you have powered up the unit.

To access the menu and configuration parameters, press the following keys simultaneously.

ALT + Esc

(Please note: If the system key has been changed to Scroll Lock, then you must use Scroll Lock + Esc to access the setup menu)

The main menu will appear as follows:

```
          Staff V5.3dM Copyright © SpotLine, Inc. 1999, 2000
                          USA-0212-000003

                             Main Menu

                         User Environment
                         Port Configuration
                             Sessions
                       Network Configuration
                            Host Table
                       Factory Configuration
                          Save And Exit
                        Exit Without Saving


   Enter: Select Arrows: Next Item F4: Toggle Color
```
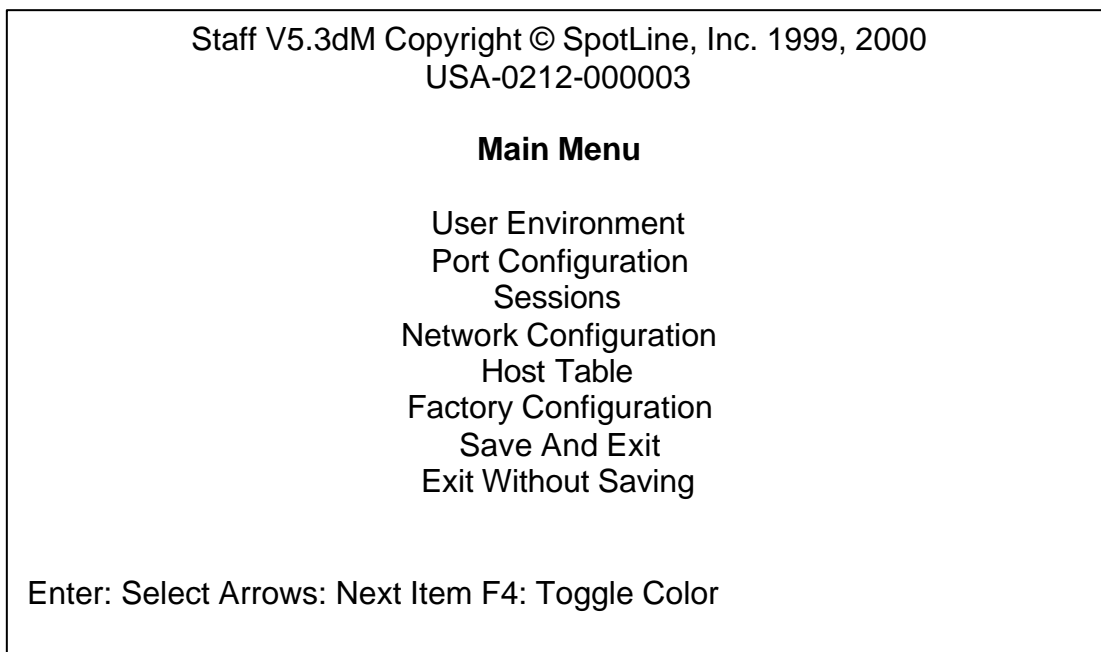
> ❖ You can navigate around the menus with the up and down arrow keys, then press ENTER to make a selection.

While the menus are all different, the following keys always work the same:

❖ Press the TAB and UP/DOWN keys to navigate to any menu item. The current selection will be shown in reverse video.

❖ Press the ENTER key to accept any valid choice.

❖ Press ESC to return to the preceding menu.

❖ Press the LEFT or RIGHT arrow keys to select alternative values for any parameters.

❖ Press the F1 function key to see a full list of the possible choices.

❖ Use the Space Bar to cycle through the choices.

The Help window is a permanent part of the base unit and will appear as needed.

4.1.1 User Environment

The F1 Menu Selections for this screen are:

```
          Staff V5.3dM Copyright © SpotLine, Inc., 1999, 2000
                          USA-0212-0000039

                          User Environment

               Language :        [English ]
               Keyboard :        [American ]
               Colored Setup :   [Yes ]
               Default Session : [1 ]
               System Key :      [Scroll Lock ]
               Beeper :          [High ]
               Status Line :     [Bottom ]

               Screen Saver
               Activate :        [No ]
               Timeout :         [10 ]
               Message :         [SPOTLINE 110 ]


 Enter: Save  SpaceBar: Cycle   Arrows/Tab: Next Field   F1: List  Esc: Cancel
```

```
┌─────────────────────┐
│ Language            │
│                     │
│ French              │      **Language:**  Specify the language set you will use.
│ English             │
└─────────────────────┘

┌─────────────────────┐
│ Keyboard            │
│                     │
│ French              │      **Keyboard:**  Specify the keyboard nationality.
│ German              │
│ Italian             │
│ Spanish             │
│ Swiss German        │
│ Portuguese          │
│ American            │
│ Belgium             │
│ Swiss French        │
└─────────────────────┘

┌─────────────────────┐
│ Color Setup         │      **Color Setup:**  Select Color or Monochrome
│                     │
│ No                  │
│ Yes                 │
└─────────────────────┘

┌─────────────────────┐
│ Default Sessions    │
│                     │
│ 1                   │      **Default Sessions:**  Specifies the session number you
│ 2                   │      wish to default to.
│ 3                   │
│ 4                   │
│ 5                   │
│ 6                   │
│ 7                   │
│ 8                   │
│ 9                   │
│ 10                  │
└─────────────────────┘

┌─────────────────────┐
│ System Key          │      **System Key:**  Allows for the use of the Alt key
│                     │      instead of ScrollLock to activate the local terminal
│ Scroll Lock         │      functions
│ Alt                 │
└─────────────────────┘
```

Beeper

High
Medium
Low
Off

Beeper: Allows you to select the volume of the beeper.

```
Status Line

Bottom
Top
None
```

Status Line: Allows you to select the position of the Status Line

```

```

Screen Saver: Allows you to activate or de-activate the screen power saver, and set the time (in minutes) of no activity after which it should be activated. **Note:** Screen Saver message is limited to 16 characters.

4.1.2 Port Configuration

This menu is used to set all the parameters relative to the two serial ports:

```
                Staff V5.3dM Copyright SpotLine, 1999, 2000
                            USA-0212-000003

                          Port Configuration

Serial Port Parameters
                Serial 1                 Serial 2
Type:           Not Used                 Not Used
Speed:          38400                    38400
Data:           8 bits                   8 bits
Parity:         None                     None
Stop:           1 stop                   1 stop
Flow:           None                     None
Line:           Direct                   Direct
Hostname:       None                     None
Term:           Default                  Default


Enter: Save  SpaceBar: Cycle  Arrows/Tab: Next Field  F1: List  Esc: Cancel
```

The F1 Menu Selections for this screen are:

Type
Not Used
Terminal
Printer
Rtelnet
Rtty

Type: Specifies the usage type
(Terminal, Printer, Rtelnet, Rtty)

Speed
115200
57600
38400
19200
9600
4800
2400
1200
600
300
150
110
50

Speed: Specify the baud rate for the port
(1200 to 115,000)

Data
8 bits
7 bits

Data: Specify the number of data bits (7/8)

Parity
None
Odd
Even

Parity: Parity type (none, odd, even)

Stop
1 Stop
2 Stops

Stop: Required number of stop bits

```
┌─────────────────────┐
│ Flow                │
│                     │
│ None                │
│ DTR                 │
│ XON/XOFF            │
│ XPC                 │
└─────────────────────┘
```

Flow: Specifies the transmission protocol
(NONE, DTR, XON/XOFF, XPC.)

```
┌─────────────────────┐
│ Line                │
│                     │
│ Direct              │
└─────────────────────┘
```

Line: Specify the nature of the connection to the serv
(Direct)

```
┌─────────────────────┐
│ Host                │
│                     │
│ None                │
└─────────────────────┘
```

Hostname: Name from the Host Table (in Reverse
Telnet mode only)

```
┌─────────────────────┐
│                     │
│                     │
│                     │
└─────────────────────┘
```

Term: < See Section 4.1.3a >

4.1.3 Sessions

This menu specifies the different parameters relative to the different simultaneous sessions:

```
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                    USA-0212-000003

                        Sessions

Sn   Emulation    Keyb.   Monit.   Media      Printer      Host       Auto.   Term
1    [ Ansi/SCO ] [ Asc ] [ Colo ] [ Telnet ] [ Parallel ] [ None ]   [ No ]  ( Default )
2    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
3    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
4    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
5    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
6    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
7    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
8    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
9    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )
10   [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ None ]     [ None ]   [ No ]  ( Default )

Enter: Save  SpaceBar: Cycle  Arrows/Tab: Next Field  F1: List  F2: Copy  F3: Paste  Esc: Cancel


1    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ Parallel ] [ None ]   [ No ]  ( Default )
1    [ Ansi/SCO ] [ Asc ] [ Colo ] [ None ]   [ Parallel ] [ None ]   [ No ]  ( Default )

Enter: Save  SpaceBar: Cycle  Arrows/Tab: Next Field  F1: List  F2: Copy  F3: Paste  Esc: Cancel
```

Sn: Session Number

The F1 Menu Selections for this screen are:

Emulation
Spot
Pcterm
Ansi/SCO
Ansi/SCO V4
AT386/IX
Z29
RISC 6000
HP 9000
Bull DPX 20
3151 (8859)
3151 (850)
3151 (Bloc)
VT 52
VT 100
VT 220 24 lines
VT 220 25 lines
VT 320 24 lines
VT 320 25 lines

Emulation: Specify session emulation mode
(Spot, Pcterm, Ansi/SCO, Ansi/SCO V4,
AT386/IX, Z29, RISC 6000, HP 9000,
Bull DPX 20, 3151 (8859), 3151 (850),
3151 (Bloc), VT 52, VT 100,
VT 220 24 lines, VT 220 25 lines,
VT 320 24 lines, VT 320 25 lines)

Ansi/SCO: SCO XENIX/Unix Version 2/3/4/5
Ansi/SCO V4:   SCO Open Server 5
AT386/IX   Interactive Unix
Z29:   Zenith

19

```
┌──────────────────┐
│ Keyboard         │
│                  │
│ Scn (Scan        │
│ Codes)           │
│ Ascii            │
└──────────────────┘
```

Keyboard: Specifies the codes to use for the keyboard
(Scan Codes or ASCII)

```
┌──────────────────┐
│ Monitor          │
│                  │
│ Monochrome       │
│ Color            │
└──────────────────┘
```

Monitor: Specifies color or monochrome

```
┌──────────────────┐
│ Media            │
│                  │
│ None             │
│ Ser. 1           │
│ Ser. 2           │
│ Telnet           │
└──────────────────┘
```

Media: Specifies which port to use for this session
(None, Ser. 1, Ser. 2, Telnet)

```
┌──────────────────┐
│ Printer          │
│                  │
│ None             │
│ Parallel         │
│ Serial 1         │
│ Serial 2         │
└──────────────────┘
```

Printer: Specifies the local printer port for this session
(None, Parallel, Serial 1, Serial 2)

```
┌──────────────────┐
│ Host             │
│                  │
│ None             │
└──────────────────┘
```

Host: Name from the Host Table
(In Telnet mode only)

```
┌──────────────────┐
│ Auto             │
│                  │
│ No               │
│ Yes              │
└──────────────────┘
```

Auto: For auto connect
(No, Yes)
(in Telnet mode only)

4.1.3.a Term:

The field TERM was added to the Set-up Menu to enable physical locations to be identified. All Telnet connections to a host computer are assigned a pseudo TTY as the connection is made, thus the same terminal is not always the same TTY. We have added the field TERM as a means of addressing this issue.

During a Telnet connection the content of the Unix TERM variable is sent to the host from the SpotLine M110 terminal as defined in the emulation field on the Sessions menu.
i.e.;

>
> Ansi SCO   sends ansi
> VT100   sends vt100
> VT220   sends vt220
> and so on....

Adding the field TERM in the Sessions menu allows a method to always identify that session in Unix.
i.e.;

>
> If you are using SCO UNIX and want Session 1 to be known as Terminal 15 then you must do two things:
> a) Change the TERM field from DEFAULT to ansi 15
> b) In the Unix host, modify the .profile file for this user as follows;
>> set 'echo $TERM'
>> TERM=$1
>> TNB=$2
>> export TERM TNB
>
> Now any application can read the Unix variable and know this is terminal 15

CAUTION: If you modify the .profile file but do not change the field no harm is done only the application won't know the terminal number, but if you change the TERM field from DEFAULT to ansi 15 and do not modify the .profile file for this user, then Unix will not recognize the terminal type.

4.1.4 Network Parameters

Use this screen to set your network configuration parameters, including Internet Address. Usually you only need to set the SpotLine's IP address and enable the print server if you are going to use the printer attached to this terminal as a system wide independent printer.

```
                         USA-0212-000003

                     Network Configuration

            Internet Address

            Spot :                    194.2.32.52
            Gateway :                 0.0.0.0
            Name Server :             0.0.0.0
            File Server :             0.0.0.0
            SubNet Mask :             0.0.0.0

            Print Server

            Active :                  [ No ]
            Protocol :                [ LPD ]
            Default Queue Name :      DEFAULT
            Printer :                 [ Parallel ]

            Print Screen

            Mode :                    [ Local ]
            Destination Host :        [ None ]
            Queue Name :


     Enter: Save   Arrows/Tab: Next Field   F4: Clear Field   Esc: Cancel
```

Spot: The Internet IP address of this terminal, e.g. 194.2.32.52.
Note: This addres must be unique on your network and must be homogeneous (same class of addresses) to the other terminals on the network.

Gateway: This IP address is for any gateway on your network. By default if it Is set to 0.0.0.0. no gateway is being used.

Name Server: Not used at this time

File Server: Not used at this time

SubNet Mask: Use of a SubNet allows the separation of this network from the Internet IP addresses. If set to 0.0.0.0 then this automatically defaults to the SpotLine's Internet address.

4.1.4.a Print Server:

To use your terminal as a print server, set the parameters as follows:

If you are using SCO UNIX; ensure that you have a correctly working Ethernet controller card properly installed and the networking software configured. Ethernet and TCP/IP support is a standard part of all SCO releases.

Terminal operation only requires no setup in the Unix Host, although the System Administrator may feel more comfortable by adding the terminal name and IP address to the /etc/hosts file.

If you want to use the Print Server function, then you must include the terminal name and IP address in the /etc/hosts file. i.e.; 194.2.32.54 spot110_01

In order to use the Print Server function you must also configure Unix for remote printing.

Start SCOADMIN
>Select Printer
>Print Manager
>Printer
>Add Remote
>Unix
Select [OK]
Select Add Remote Unix printer

Note: Do not use the choices from the Select Printer Pop up or it will look like the Unix print queue is on the remote host.

>Enter the name of the remote printer:
use one of the following:
PARALLEL + a unique number
SERIAL1 + a unique number
SERIAL2 + a unique number
DEFAULT + a unique number
for example: DEFAULT_01
When done, select [OK]

Your printer is now set up. You can check and administer it with the standard SCO lp printer commands. i.e.; lp -d DEFAULT_01 /etc/hosts should print the file /etc/hosts on whatever printer the terminal thinks is the default printer attached to spot110_01.

Active	**Active:** For activation of Print Server (No, Yes)
No Yes	

Protocol:	**Protocol:** Setup Protocol (Rtty/Parallel) for Remote TTY < go to remote TTY for Unix System> (LPD) for Normal conneciton
Rtty/Parallel LPD	

Default Queue Name: <See 4.1.4a Print Server>

Printer	**Printer:** Selection for printer connections. (Parallel, Ser. 1, Ser. 2) Notes: If you intend to use Serial 1 or Serial 2 for Printing, they must be declared as Printer in the Port Configuration
Parallel Serial 1 Serial2	

4.1.4.b Print Screen:

While using the SpotLine M110 terminal in a network, you may
not always have a printer connected to it so the Print Screen function
has been modified to allow the selection of any printer in the network to
be designated for printing the screen. You simply select the host
computer and the queue name of the printer you want to use in that host.

CAUTION: You must make sure the SpotLine terminal has been
given permission to use this printer.

At any time when the terminal is connected to a server, it is possible to print the
contents of the screen by pressing:

System Key + P

(Note: for firmware version 4.1 use **Scroll + Alt + Print Screen**)

Mode	
Local LPR	**Mode:** Mode Selection

Destination Host	
None	**Destination Host:** Selection from host table

Queue Name: Select the host computer and the queue name of the printer you want to use in that host

CAUTION: You must make sure the SpotLine terminal has been given permission to use this printer.

4.1.5 Host Name

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Host Table

Host Name   Internet Address

Enter: Save   **Arrows/Tab:** Next Field   **F2:** Copy   **F3:** Paste
F4: Clear Field   **Esc:** Cancel

Enter the symbolic name of any host computers to which you will connect, as well as their IP address. You can then connect just by using the Host Name when the terminal or session starts up.

4.1.8 Exit without Saving

This option allows you to abandon any changes made:

```
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                            USA 0212-00003

                      Exit without Save, Proceed ?
                             Yes    No



   Enter: Select   Arrows: Next Item   F4: Toggle Color
```

All parameters remain as they were when the menu was first invoked.

4.2 Reverse Telnet

Using the SpotLine M110 Terminal as a Terminal Server

A Reverse Telnet functionality has been added to the SpotLine M110
Terminal which allows any serial terminal to be connected to
the system using Serial Port 1 and/or Serial Port 2 on the SpotLine M110
Terminal.
You must do the following to properly configure the Reverse Telnet
function:

a) Go to the Set-up Menu of the SpotLine M110 Terminal by
entering
      System Key (Scroll Lock or Alt) + Esc

b) Go to Port Configuration and in the Type field select Rtelnet.
Set the remaining line characteristics as you intend to set them in the
Serial Terminal.
That is you must use the same entries for speed, data, parity, stop and
flow on both terminals. Select the Host you intend to use from those
in the Host Table, if the Host you want to use is not in the
Host Table, please add it.
If you wish to be able to identify the physical terminal connected to a
serial port, You may use the TERM field as described in section
4.1.3.a of this manual.
c) Save and Exit

The SpotLine M110 Terminal and a serial terminal (perhaps a
SpotLine 110 serial terminal) are now ready for use. You will see a
message displayed on the serial terminal "Strike Enter to Connect"
(Note: if you don't see this, try striking the space bar).
You may now run both (or three if you set up both serial ports) telnet
terminals on your network.

Serial
Asynchronous
Connection

Spotline 110
Serial Terminal

Spotline 110
Serial Terminal

Ethernet
Connection

Spotline M110
Miniature
Network Terminal

Host Server
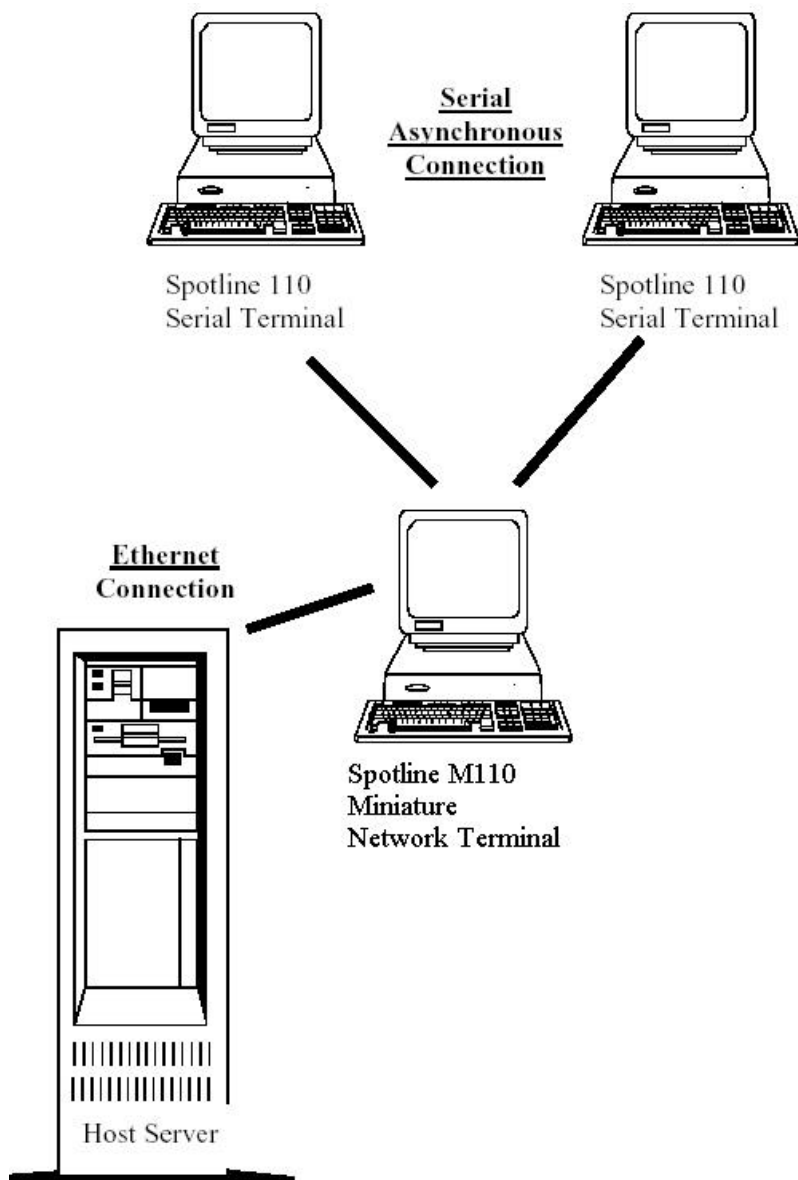
4.3 Remote TTY for Unix Systems

Remote TTY functionality makes it possible for Unix based systems (SCO Unix of AIX) to read or write data on serial port 1 and/or serial port 2 of the SpotLine M110 Terminal. You may also write data to the parallel port. This is accomplished by means of using pseudo-tty's within Unix.

SpotLine supplies a program for SCO Unix systems and AIX versions 3.2, 4.1 and 4.2 which interfaces with a serial or parallel port on the SpotLine terminal. This program provides the "master" side of the pseudo tty connection and runs as a background process. With this program running, your application can open the "slave" side of the pseudo-tty to read and write data.

You must do the following to properly configure the Remote tty function on the SpotLine terminal:

Go to the Setup Menu of the SpotLine M110 Terminal
Go to Port Configuration; in the Type field select Rtty.
Set the line characteristics to match those of the peripheral you intend to use.
(Note: Host and TERM are not used)
Save and Exit

To use the Parallel Port
Go to the setup Menu of the SpotLine M110 Terminal.
Go to Network Configuration and activate the Print Server, then select Rtty/Parallel in the Protocol field
(Note: Default Queue Name and Printer fields are not used.)
Save and Exit

To set up the Unix software:

The daemon software 'rttyd' is available on a tar format diskette or downloadable from our web site (www.SpotLine.com).

Copy the appropriate file to the hard disk. Note: The file for SCO Unix is named `'rttyd.SCO'` while the file for AIX versions 3.2, 4.1 and 4.2 is named `'rttyd.AIX'`

Rename the file to 'rttyd'

Excute `'rttyd'`

This program is called using the syntax:
`rttyd `*`Pseudo-tty SpotLine Device `*`2>`*`Logfile `*`1>&2 &`

Where:

Pseudo-tty: Name of the "master" side of the pseudo-tty. This name has the form `/dev/ptyp`*XX*. (Note: Applications will open the "slave" side of the pseudo-tty. These are named: `/dev/ttyp`*XX*).

WARNING: The chosen pseudo-tty must not be declared for any other use. Programs such as rlogin, xterm, and mscreen typically use pseudo-tty's. See your Operating System's documentation for information about finding a free pseudo-tty.

SpotLine: Name or TCP/IP address of the SpotLine terminal as declared in the /etc/host file.

Device: The SpotLine serial or parallel port 'rttyd' should interface with. Choices are : `'serial1'`, `'serial 2'`, or `'parallel'`.

Logfile: Name of a log file for rttyd to write status and error messages to. Example: **rttyd /dev/ptyp8 s110tcp serial1 2>j8.log 1>&2 &**

Hint: As an alternative to starting 'rttyd' manually, the program can be declared in the Unix `etc/inittab` and started automatically each time the system boots. Refer to your Operating System's documentation for specific information on updating `/etc/inittab` (Note: use the 'once' parameter when declaring 'rttyd')

4.4 Reversal of the LED's for Num. Lock and Caps Lock

Depending upon which keyboard protocol you select, you may want to reverse when the LED's light up for Num. Lock and Caps Lock.
The key combinations:
Scroll Lock + Num Lock
and
Scroll Lock + Caps Lock
allow you to make these changes.

4.5 Purge the Printer Buffer

When you are using the local printer port (serial or parallel), a situation may arise where you wish to purge whatever is in the print buffer (for example, if you had a paper jam or error).
In such a case, you can manually purge the contents of the print buffer by pressing the following keys simultaneously:
Scroll Lock + Backspace

4.6 Function Key

Under some of the terminals emulation modes (ANSI/SCO and AT386/IX), it is possible for user programs to program the function keys with special escape sequences.

4.6.1 Function Key Reset

The key combination:
    Scroll Lock + Space
will reset all the function keys to their default program values.

4.6.2 Programming function keys (F1- F24)

You can program the function keys to perform specific tasks, provided that the SpotLine M110 is set to Ansi SCO or Ansi SCOv4 terminal emulation mode.

Note: Function Key F13 is Shift F1, F14 is Shift F2, etc.

To program any function key to generate a specific string command to your application, send the following escape sequences to the terminal:
    Esc Q x "string_to_program"
or
    Esc Q x 'string_to_program"

where x denotes the required Function key as follows:

Key	x	hexadecimal
F 1	0	30h
F 2	1	31h
F 3	2	32h
F 4	3	33h
F 5	4	34h
F 6	5	35h
F 7	6	36h
F 8	7	37h
F 9	8	38h
F 10	9	39h
F 11	:	3ah
F 12	;	3bh
F 13	<	3ch
F 14	=	3dh
F 15	>	3eh
F 16	?	3fh
F 17	@	40h
F 18	A	41h
F 19	B	42h
F 20	C	43h
F 21	D	44h
F 22	E	45h
F 23	F	46h
F 24	G	47h

The maximum string length is 19 characters.
To use control characters within the string, precede the character with the carat (^) symbol.

Examples:

EscQ0"Hello"   programs F1 to issue *Hello* when pressed

EscQ?'date^M'   programs F16 to issue *date<cr>*

4.7 Multiscreen Session Switching

All SpotLine terminals support multiple simultaneous sessions. To switch between the different sessions (virtual terminals), use the:

        Scroll Lock + Fn
Or
        Alt + Fn

keys, depending on which System Key was chosen
where Fn is the function key corresponding to the desired
session.

4.7.1 How to declare SCO mscreen for SpotLine Terminals

The Multi-Sessions provided by SCO through mscreen may be used
With SpotLine Terminals.

1. Create a temporary directory on the Unix Server:
        cd /tmp (enter)
        mkdir SpotLine (enter)
        cd SpotLine (enter)

2. Load the Unix disk provided with the SpotLine Terminal:
        tar xrf /dev/fd0 (enter)

3. Edit the mscreen declaration file:
        vi /etc/mscreencap (enter)
        Go to the end of file - line G
        Create a new line - Line O
        Exit from the insert mode - Esc
        Include the SpotLine file:
        r/tmp/SpotLine/spot.msc (enter)
        Save and End Editing:
        :x (enter)

4. Activate mscreen from SpotLine Terminal
    mscreen (enter)
    Switching Sessions are now available
    Alt F1.....session 1
    Alt F2.....session 2
    Alt F3.....session 3
    Alt F4.....session 4
    Alt F5.....session 5
    Alt F6.....session 6
    Alt F7.....session 7
    Alt F8.....session 8

4.8 Telnet Session

When you have your SpotLine M110 setup in Telnet mode, the following screen will appear immediately when you power up (or warm boot) the terminal:

Staff v 5.3dM Copyright © SpotLine Inc. 1999, 2000
USA 0212-00003

Telnet Connection

Internet Address (IP): _____

F1: Host Table

S1

If you know the IP address of the system you wish to connect to, enter it now. It will be a number of the form:

194.2.32.52

(there must be 4 number sets delimited by periods)

Alternatively, press F1 to see the table of host names and numbers that you (or your system administrator) has set up. Select the host that you wish to connect to.

Note: The SpotLine M110 will also allow for the entry of a name in this field, provided that name is listed in the host table with its appropriate IP address.

Once you have entered a valid IP address, press Enter to start the Telnet session. There will be a short delay while connection is made, and the message "Connection in Progress…" will appear on your screen.

If all goes well, the Telnet session will be started, and you will be connected.

If the connection is not made you will get "Time-Out connection". In this case:
- Check that you have the Ethernet cables correctly connected and terminated
- Check the SpotLine configuration parameters are all set correctly for a Telnet session
- Retry

Note: For the connection to work, it must be made immediately, or else it will take up to a minute before it times out. You can interrupt this waiting time by striking the space bar and then the error message will be displayed immediately.

4.0 Software Configuration

This chapter describes how to configure the host computer to tell it about your SpotLine terminal.

5.1 SCO XENIX/Unix

5.1.1 Use as a Telnet Session LAN Terminal

Ensure that you have a correctly working Ethernet controller card properly installed and the networking software configured. Ethernet and TCP/IP support is a standard part of all SCO releases.
For terminal only operation, no setup is needed at all on the host side, though your system administrator may feel more comfortable adding the terminal name and IP address to the /etc/hosts file. In fact, this including in /etc/hosts is required if you will be using a printer attached to the SpotLine as a system wide device. (See below).

5.1.2 Setting up the LAN Terminal for Printing

No special host setup is required if only local printing will be performed, or if printing will only take place under program control (see print commands in Ch 7).
If you wish to use a printer attached to the SpotLine M10 terminal in Telnet/LAN mode, perform the following:
Add the terminal to your /etc/hosts file, for example:
      194.2.32.54 spot110_01
Start SCOADMIN.

- ➔ Slect Printer
- ➔ Printer Manager
- ➔ Printer
- ➔ Add Remote
- ➔ Unix

Your first time through you will be prompted:

> [You need to configure remote printing]
> Select [OK]
> Select →Add Remote UNIX printer
> Enter the name of the remote host:
> In this example: `spot110_01`

NOTE: Do not use the choices from the Select Printer Pop up or it will look like the Unix print queues are on the remote host.

> --> Enter name of the remote printer:
>
> Use one of the following, depending on which terminal
> port is driving the printer:
> PARALLEL + a unique number
> SERIAL1 + a unique number
> SERIAL2 + a unique number
> DEFAULT + a unique number

For example: DEFAULT_01

When done, select [OK].

Your printer is now setup. You can check and administer it with the standard SCO lprinter commands. For example:

lp -d DEFAULT_01 /etc/hosts

should print the file /etc/hosts on whatever printer the terminal thinks is the default printer attached to spot110_01.

The above procedure can also be run from the graphics desktop, where there is a utility for print management.

5.1.3 Use as a Serial Terminal

Under SCO Unix or XENIX, your SpotLine M110 should be configured as an ANSI terminal, just like the terminal sessions on the SCO system console.
The terminal type ANSI should be declared in the */etc./initial* file as well as */etc/ttytype*.

The SpotLine M110 Terminal should be configured as follows:

Under Port communication parameters:
    Set the speed, baud rate, etc.

Session Parameters:
    Select the Option ANSI/SCO under emulation, or ANSI/SCOv4 if you have SCO Open Desktop or SCO Open Server 5.

    Select ASCII for the keyboard mode.

5.2 Use with IBM's AIX Unix

5.2.1 Use as a Serial AIX Terminal Device

It is recommended that you use the "*Ansi/SCO*" emulation mode for the terminal. You can integrate the required *termcap* and *terminfo* parameters from the files *scoansi.tc* and *scoansi.ti* available on the www.SpotLine.com website.

The file *scoansi.ti* file needs to be compiled with your UNIX *tic* program (Terminfo compiler) to create the necessary *terminfo* entries. This compilation must take place under root level administration.

For example:

    ic scoansi.ti

To use your SpotLine terminal with the standard UNIX utilities, it is necessary to declare it as an *Ansi* device in your environment variables, or termcap and terminfo files.

5.2.2 Use as a Telnet terminal

Configuration of the SpotLine M110:

Communications port parameters:

    Select *Telnet* for an Ethernet LAN terminal.

Session parameters:

    Choose the *Ansi/SCO* emulation option.
    Select *ASCII* keyboard and the appropriate
    country code.
    Select *Telnet* (media) for a LAN connection.

No setup is required on an AIX host to support a SpotLine M110 terminal as a network terminal running a Telnet session. However, your system administrator may wish to include the terminals in the hosts file, mostly to keep track of terminal names and IP addresses. This will also allow any host operator to easily "ping" the terminal to see if it is working.

Use of the SpotLine's print capabilities
(when running as a LAN device)

NOTE: You must first add the SpotLine to the /etc/hosts file before it can be used as print spooler device.

To use the printer(s) attached to a SpotLine M110 as a system wide printer, proceed as follows:

Run **smit**
Select --> spooler
      --> Manage Remote Printer
      --> Client Services
      --> Remote Print Queues

      --> Add a Remote Queue

      . Name of queue to add?
      [Enter a local queue name]

      . Destination Host?
      [Enter the device name for the SpotLine in /etc/hosts]

      . Name of queue on Remote Printer?
      [Enter {SpotLine device name}.PARALLEL
            or {SpotLine device name}.SERIAL1
            or {SpotLine device name}.SERIAL2]

      . Name of device to add?
      [Enter any printer device name you wish]

You may now use the printer attached to the appropriate port on the SpotLine M110 terminal.

For example:

```
lp -d LocalQName /etc/hosts
```

should print the file /etc/hosts on the printer referred to in LocalQName.

5.3 Other Unix Versions

The SpotLine family of terminals will also work equally well with other versions of UNIX, such as those from DEC or Hewlett Packard systems.

5.3.1 Use as a Serial Terminal

It is recommended that you use the "Ansi/SCO" emulation mode for the terminal. You can integrate the required *termcap* and *terminfo* parameters from the files *scoansi.tc* and *scoansi.ti* available on the www.SpotLine.com website.

The file *scoansi.ti* file needs to be compiled with your UNIX *tic* program (Terminfo compiler) to create the necessary *terminfo* entries. This compilation must take place under root level administration.

For example:

```
tic scoansi.ti
```

To use your SpotLine terminal with the standard UNIX utilities, it is necessary to declare it as an *Ansi* device in your environment variables, or termcap and terminfo files.

Communications port parameters:

Set the baud rate, stop/start bits, etc.

Session parameters:

Choose the *Ansi/SCO* emulation option
Select *ASCII* keyboard and the appropriate country code.

Use as a LAN terminal

For terminal only operation, no setup is usually needed at all on the host side, though your system administrator may feel more comfortable adding the terminal name and IP address to the /etc/hosts file. In fact, this including in /etc/hosts is required if you will be using a printer attached to the SpotLine M110 as a system wide device (See below).

5.4 Use with Other Operating Systems

The SpotLine M110 terminal may be used as a terminal off any other host system that supports asynchronous terminals or Ethernet LAN Telnet sessions.

Complete emulation details of the SpotLine M110 are contained in Chapter 7 of this manual. You will notice that the control codes are very similar to other industry standard terminals.

5.0 Cabling

As a LAN terminal, please follow all the worldwide standards for 10BaseT cabling. Ensure that hubs are used when
needed for 10BaseT.

As a serial terminal, the SpotLine M110 Terminal uses industry standard 4‑wire or 6‑wire RS232C cabling. It is strongly recommended that you use cabling appropriate for your environment to minimize noise, errors and other interference. In particular, properly shielded and grounded cable should be used wherever possible, and that all outdoor cables (even for short runs), be properly enclosed in grounded, metallic conduit.
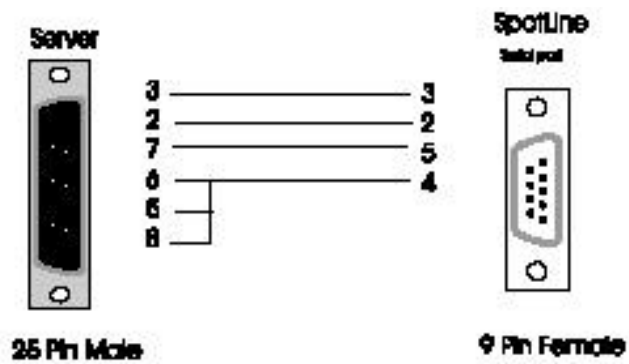
In addition, care should be taken to not run cables adjacent to transformers, air conditioners, refrigerators or other devices that generate a lot of electromagnetic interference.

6.1 Terminal to Host Cabling
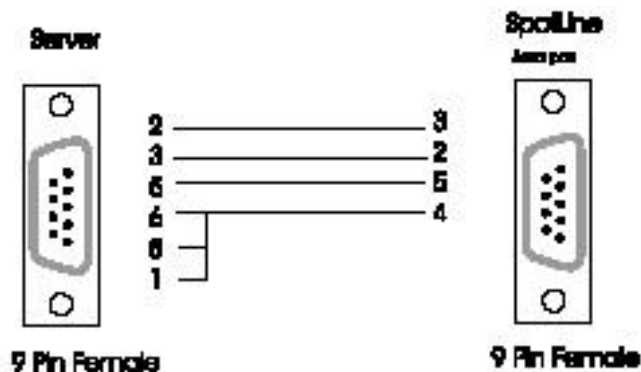
Pin 3 TD Transmit Data
Pin 2 RD Receive Data
Pin 5 GND Ground
Pin 4 DTR Data Terminal Ready

9 Pin Serial Server (Female) to 9 Pin Serial Port 1 or 2

        Pin 3 TD Transmit Data
        Pin 2 RD Receive Data
        Pin 5 GND Ground
        Pin 4 DTR Data Terminal Ready

25 Pin Serial Server (Male) to 9 Pin Serial Port 1 or 2

6.2 Serial Printer Cabling
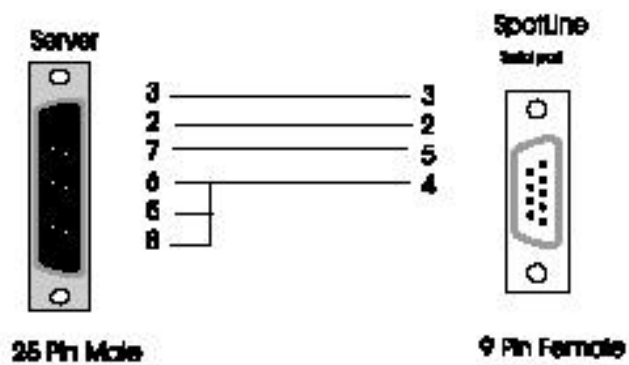
        Pin 2 RD Receive Data
        Pin 3 TD Transmit Data
        Pin 5 GND Ground
        Pin 4 DTR Data Terminal Ready
        Pin 6 DSR Data Set Ready

25 Pin Serial Printer (Male) on 9 Pin Serial Port 1 or 2

6.0 Emulation

This section is provided only for those users who wish to know the details of the emulation modes and protocols of the SpotLine M110 emulation mode. This chapter describes the "SPOT" emulation, which is different from the standard terminal product. Unless your operating system or application programs are unique, it is advised that you ignore this chapter.

7.1 General

The SpotLine M110 always emulates 25 lines and 80 columns. This emulation works in *Wrap Off* mode if a carriage return is not entered before the end of the line.

7.2 Keyboard Control Characters

In ASCII mode, the following scan codes will be sent to the host computer: (All values in Hexadecimal)

Key	Scan Code
Enter	0D
Backspace	08
Tab	09
Esc	1B
Delete	7F
Left Arrow	1F 08
Right Arrow	1F 06
Up Arrow	1F 0B
Down Arrow	1F 05

Insert	1F 0F
Home	1F 1C
End	1F 02
Page Up	1F 12
Page Down	1F 03
F1	1F 80
F2	1F 81
F3	1F 82
F4	1F 83
F5	1F 84
F6	1F 85
F7	1F 86
F8	1F 87
F9	1F 88
F10	1F 89
F11	1F A8
F12	1F A9
Shift F1	1F 8A
Shift F2	1F 8B
Shift F3	1F 8C
Shift F4	1F 8D
Shift F5	1F 8E
Shift F6	1F 8F
Shift F7	1F 90
Shift F8	1F 91
Shift F9	1F 92
Shift F10	1F 93
Shift F11	1F 94
Shift F12	1F 95

7.3 Screen Control Parameters

(All values in Hexadecimal)

Cursor to Top Line	0D	(^M)
Next Line	0A	(^J)
Cursor Left	08	(^H)
Cursor Right	06	(^H)
Cursor Up	0B	(^K)
Cursor Down	05	(^E)
Tab	09	(^I)
Cursor Home	1C	(^\)
Beep	07	(^G)
Position Cursor	1B 55 X Y	

(Where X= Column Number + 20 (hex)
And Y= Row Number + 20 (hex))

Cursor Off	1B 77	(Esc w)
Cursor On	1B 76	(Esc v)
Clear screen	0C	(^L)

(The cursor does not move)

Clear to end of screen	1B 4A	(Esc J)
Clear to end of line	1B 4B	(Esc K)
Insert Line	1B 4C	(Esc L)
Delete Line	1B 4D	(Esc M)
Insert Character	1B 40	(Esc @)
Reverse Video	1B 62	(Esc b)

Flashing Video	1B 63	(Esc c)
Underline	1B 64	(Esc d)
Video Dim	1B 65	(Esc e)
Video Bright	1B 68	(Esc h)
Reset Attributes	1B 61	(Esc a)
Set Color Text	1B 72 T	(Esc r Color T)

Where T has the value:

Hex	Color	ASCII
30	Black	0
31	Red	1
32	Green	2
33	Brown	3
34	Blue	4
35	Magenta	5
36	Cyan	6
37	Light Grey	7
38	Dark Grey	8
39	Light Red	9
41	Light Green	A
42	Yellow	B
43	Light Blue	C
44	Light Magenta	D
45	Light Cyan	E
46	White	F

Set Color Background	1B 73	(Esc s Color B)

Where B has the value:

Hex	Color	ASCII
30	Black	0
31	Red	1
32	Green	2
33	Brown	3
34	Blue	4
35	Magenta	5
36	Cyan	6
37	Light Gray	7

Transparent Mode On	1B 2A	(Esc *)
Transparent Mode Off	1B 2b	(Esc +)
Hard Copy Alphanumeric	1B 4F	(Esc O)

7.4 Local Printer Control Codes - ANSI and AT386 Emulation

When using the ANSI or AT386 emulation modes of the SpotLine M110, the following codes can be used to control the local printer:

Transparent Printing ON   1B 5B 35 69   (Esc [5 i)
Transparent Printing Off   1B 5B 34 69   (Esc [4 i)
Clear local Print Buffer   1B 5B 33 69   (Esc [3 i)

7.5 Additional ESC Commands

The SpotLine M110 is designed to support up to 16 sessions; eight on the serial 1 connection and eight on the serial 2 connection. Use the following escape command to switch sessions:

(Session are numbered 0 - 7)

For session 0	1B 5B 30 7A	(Esc [0z)
For session 1	1B 5B 31 7A	(Esc [1z)
For session 2	1B 5B 32 7A	(Esc [2z)
For session 3	1B 5B 33 7A	(Esc [3z)
For session 4	1B 5B 34 7A	(Esc [4z)
For session 5	1B 5B 35 7A	(Esc [5z)
For session 6	1B 5B 36 7A	(Esc [6z)
For session 7	1B 5B 37 7A	(Esc [7z)
Parallel Port ON	1B 5B 35 69	(Esc [5 i)
Parallel Port OFF	1B 5B 34 69	(Esc [4 i)
Serial Port 1 ON	1B 5B 39 69	(Esc [9 i)
Serial Port 1 OFF	1B 5B 38 69	(Esc [8 i)
Serial Port 2 ON	1B 5B 37 69	(Esc [7 i)
Serial Port 2 OFF	1B 5B 36 69	(Esc [6 i)
Purge all Port Buffers	1B 5B 33 69	(Esc [3 i)
Lock Keyboard	1B 5B 32 68	Esc [2 h)
Unlock Keyboard	1B 5B 32 6C	(Esc [2 l)
80 to 132 columns	1B 5B 3F 33 68	(Esc [?3h)
132 to 80 columns	1B 5B 3F 33 6C	(Esc [?3l)
Clear Foreground	1B 5B 36 6A	(Esc [6j)
Normal intensity	1B 5B 6D	(Esc [m)
High intensity	1B 5B 31 6D	(Esc [1m)
Clear Screen	1B 5B 32 6A	(Esc [2j)
Auto-Wrap on	1B 5B 3F 37 68	(Esc [?7h)
Auto-Wrap off	1B 5B 3F 37 6C	(Esc [?7l)

Reverse Direction of Serial Port

When the serial port is selected as "Printer" in
the **Type** field of Port Configuration in the Setup Menu,
you may reverse the direction of the port in order to receive
data to be sent to the host as if it were keyboard data.
(Note: the keyboard will not be locked)

Serial Port 2 Inbound ON	1B 5B 31 31 69	(Esc [11 i)
Serial Port 2 Inbound OFF	1B 5B 31 30 69	(Esc [10 i)
Serial Port 1 Inbound ON	1B 5B 31 33 69	(Esc [13 i)
Serial Port 1 Inbound OFF	1B 5B 31 32 69	(Esc [12 i)

This command is for SCO ANSI (v4) emulation only.

7.0 Warranty

SpotLine Inc. warrants the SpotLine M110 terminal, excluding such items as software, diskettes and related documentation, will be free from defects in materials and/or workmanship for a period of 1 year from the date of delivery. During the warranty period, SpotLine will correct any defects in material or workmanship, or any failure of the hardware system to conform to specification, at no charge for in-house labor and materials. Shipping costs must be prepaid. Any replacement parts/products shall be new or serviceably used, and are warranted for the remainder of the original warranty.

SpotLine liability for failure to repair the hardware system to conform to the warranty after a reasonable number of attempts will be limited to replacement of the terminal, or, at SpotLine's option, to a refund not too exceed the purchase price of the hardware system. These remedies are the Purchaser's exclusive remedies for breach of warranty.

The warranty stated above is the only warranty applicable to this product. All other warranties, express or implied (including all implied warranties of merchantability or fitness for a particular purpose), are hereby disclaimed. No oral or written information (including but not limited to a 30 day money back guarantee) or advice given by SpotLine, its agents or employees shall create a warranty or in any way increase the scope of this warranty.

This warranty is governed by the laws of the state of California.